

# THE IMPACT OF PROJECT MANAGEMENT AND RISK MANAGEMENT IMPLEMENTATION ON THE PERFORMANCE OF THE IMPLEMENTATION OF UNHABITABLE HOUSING (RUTILAHU) PROJECTS IN BANDUNG REGENCY

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## Abstract

The Uninhabitable Housing Program (RUTILAHU) is a government program that requires effective projects and risk management to ensure its implementation meets its stated objectives. This study aims to analyze the influence of project management and risk management on the performance of the RUTILAHU Project in Bandung Regency. The study used a quantitative approach with a survey method. Data were collected through questionnaires distributed to respondents involved in the RUTILAHU Program implementation and analyzed using multiple linear regression. The results indicate that project management and risk management have a positive and significant effect on project implementation performance, both partially and simultaneously. The effective implementation of project management in managing time, cost, quality, and resources, as well as the implementation of risk management through risk identification, analysis, evaluation, and control, can improve project implementation effectiveness. This study concludes that the implementation of project management and risk management are important factors in improving the performance of the RUTILAHU Program. The research findings are expected to provide input for the Bandung Regency Government in improving the effectiveness of the RUTILAHU Program management

**Keywords:** *Project management; Risk management; Project performance; RUTILAHU; Construction projects.*

## INTRODUCTION

Housing sector development is one of the national development priorities in improving community welfare and supporting the achievement of Sustainable Development Goals (SDGs), especially Goal 11. ( Sustainable Cities and Communities ) which emphasizes the importance of providing access to decent, safe, affordable housing and sustainable settlements (Baginda et al., 2025). The implementation of housing policy in Indonesia is also directed to support the achievement of SDG 11 targets by providing decent housing for low-income communities. Various studies show that improving housing quality and government housing programs contribute to improving community welfare, reducing poverty, and achieving sustainable development targets in Indonesia (Hanri et al., 2025). Bandung Regency is one of the regions that consistently implements the RUTILAHU Program as part of efforts to improve the quality of community settlements. The implementation of this program involves various stakeholders, such as local governments, technical agencies, field facilitators, community groups, material providers, and aid recipients (Nugraha & Huraerah, 2025). The involvement of many parties results in a high level of complexity in project implementation, necessitating an effective and integrated project management system. Project success is measured not only by the completion of physical work but also by the achievement of targets in terms of time, cost, quality, work safety, and community satisfaction as beneficiaries (Project Management Institute (PMI), 2021).

However, the implementation of the RUTILAHU project still faces various challenges that can affect the achievement of project objectives. Some frequently encountered obstacles include delays in material distribution, changes in field conditions, budget constraints, poor coordination between stakeholders, design changes due to existing building conditions, limited labor, and unpredictable weather factors (Pratiwi et al., 2023). These problems can increase the likelihood of project delays, cost overruns, decreased work quality, and low beneficiary satisfaction. Therefore, the successful implementation of the RUTILAHU Program is greatly influenced by the implementation of effective project management and risk management (Kerzner, 2022). Project management is the process of applying knowledge, skills, tools, and techniques to project activities to achieve project objectives effectively and efficiently (Project Management Institute (PMI), 2021). Belferik et al., (2023:9) explains that project management

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is the process of integrating tools, resources, and techniques to achieve predetermined goals, which includes planning, organizing, implementing, and controlling activities. Meanwhile, risk management is a systematic process that includes identifying, analyzing, evaluating, treating, and monitoring risks to minimize the impact of uncertainty on achieving organizational and project goals (Faizal et al., 2025) . The integration of project management and risk management is believed to be able to increase the effectiveness of construction project management through more appropriate and anticipatory decision-making against various uncertainties (Tambunan, 2024) . Various studies have shown that the implementation of project management and risk management has a positive impact on improving construction project performance. Al Qordhowi, (2023) found that risk management has a positive and significant effect on construction project performance. Tandi et al., (2023) also demonstrated that the implementation of good project management can improve project performance. Meanwhile, Sujarwadi et al. (2024) and Diputera et al. (2024) identified design, planning, technical, and human factor risks as the dominant risks affecting project performance, necessitating the implementation of effective risk management. These findings demonstrate that the integration of project management and risk management plays a crucial role in enhancing the success of construction project implementation. Research on project management and risk management generally focuses on conventional construction projects, while research on the Uninhabitable Housing Program (RUTILAHU) is still limited. Therefore, this study examines the influence of project management and risk management on the performance of the RUTILAHU project implementation in Bandung Regency as a novel research topic. Based on the phenomena and research gaps that have been identified, this study aims to analyze the influence of project management and risk management on the performance of the implementation of the Uninhabitable Housing Project (RUTILAHU) in Bandung Regency, both partially and simultaneously.

## LITERATURE REVIEW

### Project Management

Yuliana (2022) explains that project management is an approach that integrates various management methods and techniques to improve project implementation performance. According to the Project Management Institute (PMI, 2021), project management is the application of knowledge, skills, tools, and techniques to achieve project objectives effectively and efficiently. In construction projects, the implementation of effective project management in the aspects of scope, time, cost, quality, resources, and communication contributes to improved project performance (Stringer et al., 2025) . Project management is measured using indicators of time management, cost management, quality management, and resource management (Stringer et al., 2025) .

### Risk Management

According to ISO 31000 2018, risk management is a systematic process for identifying, analyzing, evaluating, controlling, and monitoring risks that can affect the achievement of project objectives (Faizal et al., 2025) . Risk management is a systematic process for planning, identifying, analyzing, responding to, implementing responses, and monitoring risks that can affect the achievement of project objectives (PMI, 2021). In construction projects, the implementation of risk management aims to minimize the impact of risks on cost, time, quality, and safety, thereby increasing the chances of project success. Recent research shows that effective risk management contributes to improved project performance through controlling uncertainty and improving decision-making (Kallow et al., 2023; Khodabakhshian et al., 2023) . Risk management measurement uses indicators of risk identification, risk analysis, risk evaluation, and risk mitigation (Faizal et al., 2025) .

### Project Implementation Performance

Project implementation performance is the level of project success in achieving cost, time, quality, and stakeholder satisfaction targets (Project Management Institute (PMI), 2021) . Project performance is generally used as a benchmark for the success or failure of construction projects. Project performance can be measured based on human resources, which are the most important aspect of a project's success (Sundara et al., 2024) . Soeharto (1999) Project performance is the result of project implementation measured based on the effectiveness of resource use, time achievement, cost, quality, and work safety (Silalahi et al., 2023) . In the RUTILAHU Program, project performance is measured in terms of time, cost, quality, and stakeholder satisfaction (Katani & Ng'Olua, 2025) .

### Framework for Thought and Hypothesis

Project implementation performance is influenced by various factors, including the implementation of project management and risk management. Effective project management through proper planning, implementation, control,

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The diagram illustrates the conceptual framework of the study. It features three main components in rounded rectangular boxes:

- Manajemen Proyek (X<sub>1</sub>)**: Located at the top left.
- Manajemen Risiko (X<sub>2</sub>)**: Located at the bottom left.
- Kinerja Pelaksanaan Proyek RUTILAHU (Y)**: Located on the right side.

Arrows indicate the hypothesized relationships:

- A solid arrow points from **Manajemen Proyek (X<sub>1</sub>)** to **Kinerja Pelaksanaan Proyek RUTILAHU (Y)**, labeled **H<sub>1</sub> (+)**.
- A solid arrow points from **Manajemen Risiko (X<sub>2</sub>)** to **Kinerja Pelaksanaan Proyek RUTILAHU (Y)**, labeled **H<sub>2</sub> (+)**.
- A dashed arrow points from **Manajemen Risiko (X<sub>2</sub>)** to **Kinerja Pelaksanaan Proyek RUTILAHU (Y)**, labeled **H<sub>3</sub> (+)**.

H1: Project management has a positive influence on the performance of the RUTILAHU project implementation.  
H2: Risk management has a positive impact on the performance of the RUTILAHU project implementation.  
H3: Project management and risk management simultaneously have a significant impact on the performance of the RUTILAHU project implementation.

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Table 1.1 Results of Project Management Variable Validity Test

| Statement | r <sub>count</sub> | r <sub>table</sub> | Note  |
|-----------|--------------------|--------------------|-------|
| X1-1      | 0.474              | 0.273              | Valid |
| X1-2      | 0,349              | 0.273              | Valid |
| X1-3      | 0.451              | 0.273              | Valid |
| X1-4      | 0.556              | 0.273              | Valid |
| X1-5      | 0.529              | 0.273              | Valid |
| X1-6      | 0.331              | 0.273              | Valid |
| X1-7      | 0.405              | 0.273              | Valid |
| X1-8      | 0.532              | 0.273              | Valid |

Source: Data processing results, 2026

Table 1.2 Results of the Validity Test of Risk Management Variables

| Statement | r <sub>count</sub> | r <sub>table</sub> | Note  |
|-----------|--------------------|--------------------|-------|
| X 2 -1    | 0.570              | 0.273              | Valid |
| X 2 -2    | 0.406              | 0.273              | Valid |
| X 2 -3    | 0.656              | 0.273              | Valid |
| X 2 -4    | 0.681              | 0.273              | Valid |
| X 2 -5    | 0.625              | 0.273              | Valid |
| X 2 -6    | 0.597              | 0.273              | Valid |
| X 2 -7    | 0.553              | 0.273              | Valid |
| X 2 -8    | 0.677              | 0.273              | Valid |

Source: Data processing results, 2026

Table 1.3 Results of Project Performance Variable Validity Test

| Statement | r <sub>count</sub> | r <sub>table</sub> | Note  |
|-----------|--------------------|--------------------|-------|
| Y -1      | 0.518              | 0.273              | Valid |
| Y -2      | 0.705              | 0.273              | Valid |
| Y -3      | 0.613              | 0.273              | Valid |
| Y -4      | 0.678              | 0.273              | Valid |
| Y -5      | 0.551              | 0.273              | Valid |
| Y -6      | 0.422              | 0.273              | Valid |
| Y -7      | 0.604              | 0.273              | Valid |
| Y -8      | 0.686              | 0.273              | Valid |

Source: Data processing results, 2026

The validity test results show that all statement items for each variable have a calculated r value > r table . Thus, all items are declared valid and suitable for use in further data analysis.

## Instrument Reliability Test Results

The reliability of a variable construct is said to be good if it has a Cronbach's Alpha value > 0.60. The following are the results of the reliability test using the SPSS 26 program.

Table 4. Reliability Test Results

| Variables           | Cronbach's alpha | Cut Off | Note:    |
|---------------------|------------------|---------|----------|
| Project Management  | 0.754            | 0.600   | Reliable |
| Risk Management     | 0.851            | 0.600   | Reliable |
| Project Performance | 0.852            | 0.600   | Reliable |

Source: Data processing results, 2026

Based on table 4, it can be seen that all variables in this study have a Cronbach's alpha value greater than or above 0.600, so it can be concluded that each variable in this study is reliable.

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## Normality Test

The normality test aims to determine whether the data is normally distributed, as one of the requirements for parametric analysis. The results of the normality test are presented in the following table.

Table 5. Normality Test Results

| One-Sample Kolmogorov-Smirnov Test                 |                    |                         |
|----------------------------------------------------|--------------------|-------------------------|
|                                                    |                    | Unstandardized Residual |
| N                                                  |                    | 52                      |
| Normal Parameters <sup>a,b</sup>                   | Mean               | ,0000000                |
|                                                    | Standard Deviation | 3.37138596              |
| Most Extreme Differences                           | Absolute           | ,089                    |
|                                                    | Positive           | ,059                    |
|                                                    | Negative           | -,089                   |
| Test Statistics                                    |                    | ,089                    |
| Asymp. Sig. (2-tailed)                             |                    | ,200 <sup>c,d</sup>     |
| a. Test distribution is Normal.                    |                    |                         |
| b. Calculated from data.                           |                    |                         |
| c. Lilliefors Significance Correction.             |                    |                         |
| d. This is a lower bound of the true significance. |                    |                         |

Source: Data processing results, 2026

Based on table 5. above, the results show that the significance level of the variables in this study is normally distributed, this can be seen by looking at the normal requirements of Asymp Sig, namely  $0.200 < 0.05$ .

## Heteroscedasticity Test

Heteroscedasticity test using Glejser test by regressing the absolute value of residual on the independent variable. The test results are as follows:

Table 6. Heteroscedasticity Test Results

| Coefficients <sup>a</sup>      |                    |                             |            |                           |       |      |
|--------------------------------|--------------------|-----------------------------|------------|---------------------------|-------|------|
| Model                          |                    | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|                                |                    | B                           | Std. Error | Beta                      |       |      |
| 1                              | (Constant)         | 4,213                       | 2,238      |                           | 1,882 | ,066 |
|                                | Project Management | ,007                        | ,080       | ,014                      | ,088  | ,930 |
|                                | Risk Management    | -,063                       | ,065       | -,159                     | -,974 | ,335 |
| a. Dependent Variable: ABS Run |                    |                             |            |                           |       |      |

Source: Data processing results, 2026

Based on table 6, it is known that all significant values If the independent variable obtains a value  $> 0.05$ , then it can be said that there is no heteroscedasticity, so that it can be continued with the next data analysis.

## Multicollinearity Test

The multicollinearity test aims to determine whether there is a correlation between the independent variables in a regression model. The results of the multicollinearity test are presented in the following table.

Table 7. Multicollinearity Test Results

| Coefficients <sup>a</sup>      |                    |                         |       |
|--------------------------------|--------------------|-------------------------|-------|
| Model                          |                    | Collinearity Statistics |       |
|                                |                    | Tolerance               | VIF   |
| 1                              | Project Management | ,745                    | 1,343 |
|                                | Risk Management    | ,745                    | 1,343 |
| a. Dependent Variable: ABS Run |                    |                         |       |

Source: Data processing results, 2026



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Based on Table 7, all independent variables have a tolerance value  $> 0.10$  and  $VIF < 10$ , so it can be concluded that the regression model does not experience symptoms of multicollinearity.

## Regression Analysis Multiple Linear

Multiple linear regression analysis was used in this study with the aim of determining whether or not the independent variables had an influence on the dependent variables, as follows:

Table 8. Multiple Linear Regression Results

| Coefficients <sup>a</sup> |                    |                             |            |                           |        |      |
|---------------------------|--------------------|-----------------------------|------------|---------------------------|--------|------|
| Model                     |                    | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig. |
|                           |                    | B                           | Std. Error | Beta                      |        |      |
| 1                         | (Constant)         | -5,390                      | 3,455      |                           | -1,560 | ,125 |
|                           | Project Management | ,496                        | ,124       | ,359                      | 3,996  | ,000 |
|                           | Risk Management    | ,666                        | ,100       | ,600                      | 6,678  | ,000 |

a. Dependent Variable: Project Performance

Source: Data processing results, 2026

From the results in Table 10, the regression equation can be formulated as follows:

$$Y = -5.390 + 0.496X_1 + 0.666X_2$$

Based on the results of the regression analysis, a constant of -5.390 was obtained, which indicates that if all independent variables are zero, then the project performance value is **-5.390**. The project management regression coefficient of 0.496 indicates that every improvement in project management will increase project performance by 0.496. Meanwhile, the risk management regression coefficient of 0.666 indicates that every improvement in risk management will increase project performance by 0.666. Thus, both variables have a positive effect on project performance. This shows that improvements in project management and risk management will be followed by improvements in project performance, with the influence of risk management being greater than project management.

## Partial Hypothesis Testing (t-Test)

The results of partial hypothesis testing (t-test) to determine the influence of each independent variable on project performance are presented in Table 9.

Table 9. Partial Hypothesis (t-Test)

| Coefficients <sup>a</sup> |                    |                             |            |                           |        |      |
|---------------------------|--------------------|-----------------------------|------------|---------------------------|--------|------|
| Model                     |                    | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig. |
|                           |                    | B                           | Std. Error | Beta                      |        |      |
| 1                         | (Constant)         | -5,390                      | 3,455      |                           | -1,560 | ,125 |
|                           | Project Management | ,496                        | ,124       | ,359                      | 3,996  | ,000 |
|                           | Risk Management    | ,666                        | ,100       | ,600                      | 6,678  | ,000 |

a. Dependent Variable: Project Performance

Source: Data processing results, 2026

Based on Table 9, the results of the partial test (t test) show that the project management variable has a positive and significant effect on project performance, with a t value of 3.996 and a significance value of  $0.000 < 0.05$ , so that  $H_1$  is accepted. Furthermore, the risk management variable also has a positive and significant effect on project performance, with a t value of 6.678 and a significance value of  $0.000 < 0.05$ , so that  $H_2$  is accepted. These results indicate that the better the implementation of project management and risk management, the higher the performance of the RUTILAHU project implementation in Bandung Regency.

## Simultaneous Hypothesis Testing (F Test)

The F test is used to examine the simultaneous influence of independent variables on the dependent variable. The hypothesis is accepted if the calculated F value  $> F$  table or the significance value  $< 0.05$ . The results of the F test in this study are presented in the following ANOVA table.

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Table 10. Simultaneous Hypothesis (F Test)

| ANOVA <sup>a</sup>                                             |            |                |    |             |        |                   |
|----------------------------------------------------------------|------------|----------------|----|-------------|--------|-------------------|
| Model                                                          |            | Sum of Squares | df | Mean Square | F      | Sig.              |
| 1                                                              | Regression | 1390,552       | 2  | 695,276     | 58,771 | ,000 <sup>b</sup> |
|                                                                | Residual   | 579,678        | 49 | 11,830      |        |                   |
|                                                                | Total      | 1970,231       | 51 |             |        |                   |
| a. Dependent Variable: Project Performance                     |            |                |    |             |        |                   |
| b. Predictors: (Constant), Risk Management, Project Management |            |                |    |             |        |                   |

Source: Data processing results, 2026

Simultaneous hypothesis testing ( F test ) was conducted to analyze the influence of project management and risk management simultaneously on project performance. The results of the F test in Table 10 show an F-count value of 58.771 with a significance value of  $0.000 < 0.05$  , so  $H_3$  is accepted . This indicates that project management and risk management simultaneously have a positive and significant effect on the performance of the Uninhabitable Housing Project (RUTILAHU) in Bandung Regency.

## Coefficient of determination ( $R^2$ )

To calculate how much influence (contribution) is given overall, this can be known through the coefficient of determination (Kd).

Table 11. Coefficient of Determination

| Model Summary                                                  |                   |          |                   |                                |
|----------------------------------------------------------------|-------------------|----------|-------------------|--------------------------------|
| Model                                                          | R                 | R Square | Adjusted R Square | Standard Error of the Estimate |
| 1                                                              | ,840 <sup>a</sup> | ,706     | ,694              | 3,440                          |
| a. Predictors: (Constant), Risk Management, Project Management |                   |          |                   |                                |

Source: Data processing results, 2026

the RSquare value obtained is 0.706 , which means that 70.6% of the variation in project performance can be explained by project management and risk management variables, while the remaining 29.4% is influenced by other factors outside the research model.

## DISCUSSION

The results of the study indicate that project management has a positive and significant impact on the performance of the Uninhabitable Housing Project (RUTILAHU) in Bandung Regency. Effective project management, including time, cost, quality, and resource management, can improve project implementation effectiveness. This finding aligns with PMI (2021) and research by Stringer et al. (2025). Risk management also has a positive and significant impact on project implementation performance. Systematic risk identification, analysis, evaluation, and control can minimize project implementation obstacles. These results are consistent with PMI (2021) and Al Qordhowi (2023). Simultaneously, project management and risk management significantly influence the performance of the RUTILAHU project implementation, with a coefficient of determination ( $R^2$ ) value of 0.706. This indicates that both variables are able to explain 70.6% of the variation in project performance, so that the implementation of both is an important factor in increasing the effectiveness of the RUTILAHU Program implementation.

## Conclusion

This study shows that project management and risk management have a positive and significant impact on the performance of the Uninhabitable Housing Project (RUTILAHU) in Bandung Regency, both partially and simultaneously. These findings indicate that the better the implementation of project management and risk management, the better the project's performance. Therefore, the implementation of both aspects needs to be considered to improve the effectiveness of the RUTILAHU Program implementation.

## Suggestion

The Bandung Regency Government needs to strengthen the implementation of project management and risk management at every stage of the RUTILAHU Program implementation, particularly in managing time, costs, quality, resources, and risk control. Further research is recommended to include other variables, such as human

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resource competency, leadership, communication, or stakeholder support, to gain a more comprehensive understanding of the factors influencing project implementation performance.

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